# Bioaccumulation Model Check-In

CPG-EPA Conference Call

September 17, 2018

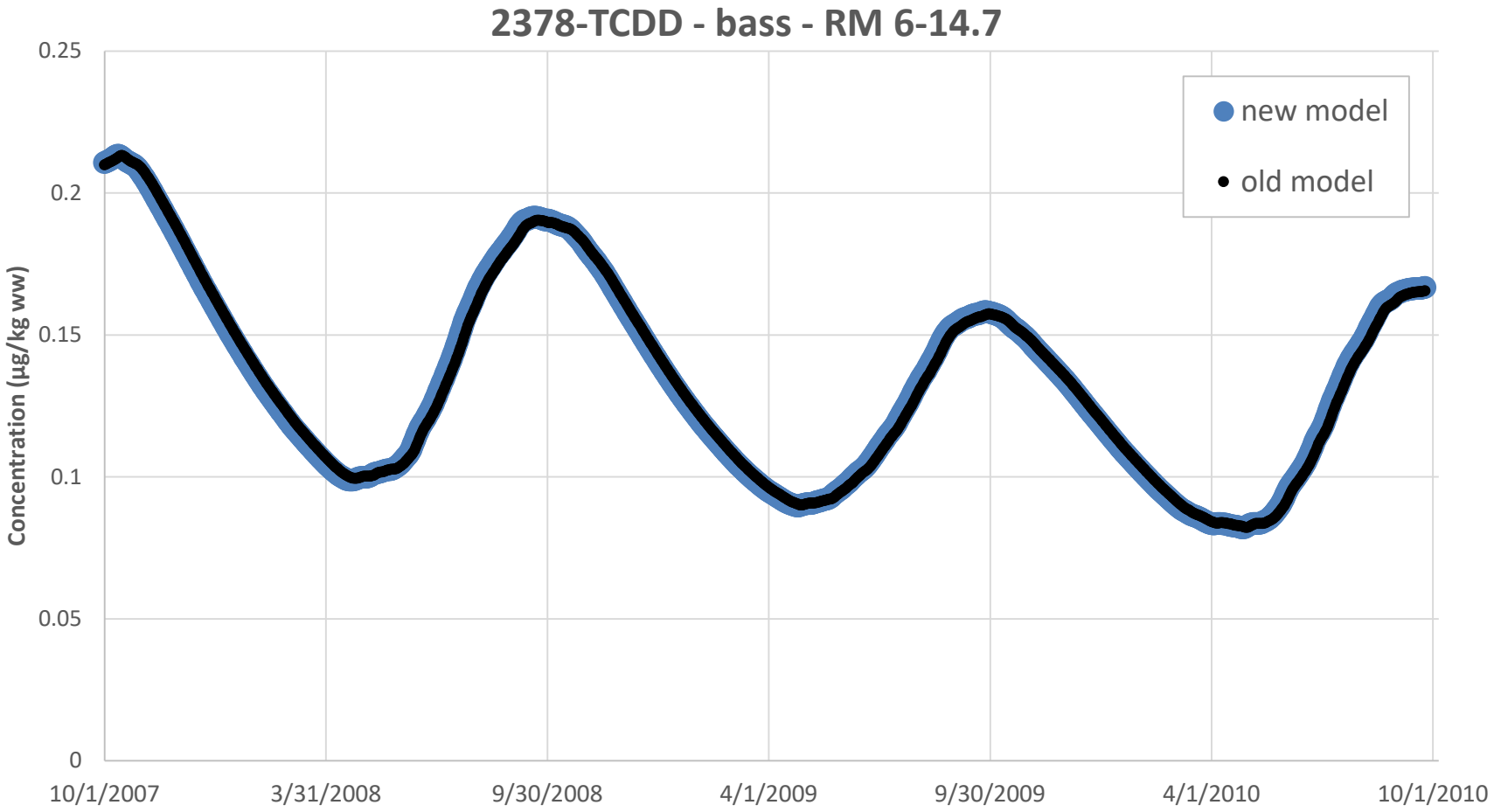
623725

# Agenda

- Primary meeting objective:
  - Discuss possible resolutions to food consumption issue identified by EPA.

- Other notes:
  - Windward reviewed kinetic bioaccumulation model equation, and dynamic model is being updated.

# Example Plot: Updated Dynamic Equation



# FB4 consumption rate equations

- Basic equation:

  $C = C_{MAX} \times p \times F(T)$

  Where:

  C = consumption rate (g/g bw/day)

  $C_{MAX}$ = maximum daily consumption (g/g bw/day)

  p = proportionality constant that accounts for ecological constraints on feeding (p-value)

  F(T) = temperature-dependence function

- Reviewed four possible models for calculating temperature dependence (i.e., F(T) in the equation above):
  - Model 2 appears to be most appropriate for warmwater species according to FB4 user guide.

# Constants Needed for FB4 Equations

- For calculating C:
  - P = proportionality constant that accounts for ecological constraints on feeding (p-value)
- For calculating $C_{MAX}$ :
  - CA = intercept coefficient
  - CB = slope coefficient
- For calculating F(T):
  - CTM = max water temperature above which consumption
  - CTO = optimal temperature for consumption
  - CQ = water temperature-dependent coefficient of consumption

# Key Uncertainties

- Need to select surrogate species from FB4 for all Passaic model compartments.
  - American eel
  - Invertebrates
- Species-specific information available in FB4 model for all constants except p-value. This would require research / work to develop.

# Example Consumption Rates